CLAIMS

1. A method for anodic bonding, the method comprising:

   providing a first material comprising a glass;

   providing a second material having an elastic modulus greater than about 150 gigaPascals;

   causing the second material to have a surface with a RMS surface roughness of greater than 0.001 μm and less than about 0.2 μm;

   contacting the surface of the second material to a surface of the first material; and

   applying a voltage between the first and second materials to cause an effective anodic bond to form between the first and second materials.

2. The method of claim 1, wherein the second material has an elastic modulus greater than about 300 gigaPascals.

3. The method of claim 2, wherein the second material comprises silicon carbide.

4. The method of claim 3, wherein the silicon carbide is polycrystalline.

5. The method of claim 1, wherein the glass comprises at least one of borosilicate glass and aluminosilicate glass.

6. The method of claim 5, wherein the glass is selected from the group consisting of borosilicate glass and aluminosilicate glass.

7. The method of claim 1, further comprising causing the first and second materials to have a temperature that does not exceed about 350°C while applying the voltage.

8. The method of claim 1, wherein the RMS surface roughness is greater than 0.01 μm.

9. The method of claim 8, wherein the RMS surface roughness is greater than 0.1 μm.

10. The method of claim 1, wherein the RMS surface roughness is less than 0.1 μm.

11. The method of claim 1, wherein the voltage has a value in the range of 200 V to 1000 V.

12. The method of claim 1, further comprising causing the surface of the second material to be hydrophobic.

13. The method of claim 1, further comprising:

providing a third material having an elastic modulus greater than the elastic modulus of silicon;

causing the third material to have a surface with a RMS surface roughness of greater than 0.001 μm and less than 0.15 μm;

contacting the surface of the third material to a surface of the first material; and

applying a voltage between the first and third materials to cause an effective anodic bond to form between the first and third materials.

14. The method of claim 13, further comprising thinning the first material prior to contacting the surfaces of the first and third materials.

15. The method of claim 14, wherein thinning comprises causing the first material to have a thickness of less than about 10.0 μm.

16. A device comprising a first layer and a second layer bonded by the method of claim 1.

17. A method for packaging a MEMS component, the method comprising:

providing a MEMS component comprising a glass layer having a surface and consisting essentially of at least one of a borosilicate glass and an aluminosilicate glass;

providing a device package having a surface formed from polycrystalline silicon carbide, and having a RMS surface roughness of greater than 0.001 μm and less than about 0.15 μm;

contacting the surface of the package to the surface of the glass layer; and causing the package surface and the glass layer to have a temperature value that does not exceed about 350°C while applying a voltage to form an effective anodic bond between the MEMS component and the package.